IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims:

1. (Currently Amended) A behavior controlling apparatus for controlling the behavior of a mobile robot apparatus, said behavior controlling apparatus comprising:

landmark recognition means for recognizing a plurality of landmarks arranged discretely;

landmark map building means for integrating the locations of said landmarks recognized by said landmark recognition means for building a landmark map based on the geometrical topology of said landmarks;

mobility area recognition means for building a mobility area map, indicating the mobility area where the mobile robot apparatus can move, from said landmark map built by said landmark map building means; and

behavior controlling means for controlling the behavior of said mobile robot apparatus using the mobility area map built by said mobility area recognition means,

wherein said behavior controlling means adds said mobility area map as a virtual obstacle in an obstacle map of the environment around said robot apparatus and controls the behavior of said robot apparatus so that said robot apparatus will move only in an area determined to be a free area in said obstacle map.

2. (Original) The behavior controlling apparatus according to claim 1 wherein said landmark map building means integrates the landmark information recognized by said

landmark recognition means and the odometric information of the robot apparatus itself to estimate the geometric positions of said landmarks and outputs said geometric positions as a landmark map.

3. (Canceled)

4. (Currently Amended) A behavior controlling method for controlling the behavior of a mobile robot apparatus, said behavior controlling method comprising:

a landmark recognition step of recognizing a plurality of landmarks arranged discretely;

a landmark map building step of integrating the locations of said landmarks recognized by said landmark recognition step for building a landmark map based on the geometrical topology of said landmarks;

a mobility area recognition step of building a mobility area map, indicating the mobility area where the mobile robot apparatus can move, from said landmark map built by said landmark map building means; and

a behavior controlling step of controlling the behavior of said mobile robot apparatus using the mobility area map built by said mobility area recognition means,

wherein said behavior controlling means adds said mobility area map as a virtual obstacle in an obstacle map of the environment around said robot apparatus and controls the behavior of said robot apparatus so that said robot apparatus will move only in an area determined to be a free area in said obstacle map.

5. (Currently Amended) A computer-readable medium storing a computer program for ~~behavior controlling program run by a mobile robot apparatus for~~ controlling the behavior of ~~said mobile~~ a robot apparatus, said ~~behavior controlling~~ program comprising:

a landmark recognition step of recognizing a plurality of landmarks arranged discretely;

a landmark map building step of integrating the locations of said landmarks recognized by said landmark recognition step for building a landmark map based on the geometrical topology of said landmarks;

a mobility area recognition step of building a mobility area map, indicating the mobility area where the mobile robot apparatus can move, from said landmark map built by said landmark map building means; and

a behavior controlling step of controlling the behavior of said mobile robot apparatus using the mobility area map built by said mobility area recognition means,

wherein said behavior controlling means adds said mobility area map as a virtual obstacle in an obstacle map of the environment around said robot apparatus and controls the behavior of said robot apparatus so that said robot apparatus will move only in an area determined to be a free area in said obstacle map.

6. (Original) A mobile robot apparatus including at least one movable leg and a trunk provided with information processing means, said mobile robot apparatus moving on a floor surface as the apparatus recognizes an object on said floor surface, said mobile robot apparatus comprising:

landmark recognition means for recognizing a plurality of landmarks arranged discretely;

landmark map building means for integrating the locations of said landmarks recognized by said landmark recognition means for building a landmark map based on the geometrical topology of said landmarks;

mobility area recognition means for building a mobility area map, indicating the mobility area where the mobile robot apparatus can move, from said landmark map built by said landmark map building means; and

behavior controlling means for controlling the behavior of said mobile robot apparatus using the mobility area map built by said mobility area recognition means.

7. (Original) The mobile robot apparatus according to claim 6 wherein said landmark map building means integrates the landmark information recognized by said landmark recognition means and the odometric information of the robot apparatus itself to estimate the geometric positions of said landmarks and outputs said geometric positions as a landmark map.

8. (Original) The mobile robot apparatus according to claim 6 wherein said behavior controlling means adds said mobility area map as a virtual obstacle in the obstacle map of the environment around said robot apparatus and controls the behavior of said robot apparatus so that said robot apparatus will move only in an area determined to be a free area in said obstacle map.